

**REMARKS****Summary of the Final Office Action**

Claims 1-10 and 14 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Niigaki et al. (U.S. Patent No. 5,982,094) (hereinafter "Niigaki '094").

Claims 1 and 9-13 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Niigaki et al. (U.S. Patent No. 5,986,387) (hereinafter "Niigaki '387")

**Summary of the Response to the Final Office Action**

Applicants have amended claim 1 to differently describe embodiments of the disclosure of the instant application's specification. Claim 14 has been canceled without prejudice or disclaimer. Accordingly, claims 1-13 remain currently pending for consideration.

**Rejections under 35 U.S.C. § 102(b) and Statement of the Substance of Examiner Interview**

Claims 1-10 and 14 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Niigaki '094. Claims 1 and 9-13 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Niigaki '387. Claim 14 has been canceled without prejudice or disclaimer, rendering the rejection of this claim moot. Withdrawal of the rejection of claim 14 is thus respectfully requested. In addition, Applicants have amended claim 1 to differently describe embodiments of the disclosure of the instant application's specification. To the extent that these rejections might be deemed to apply to the claims as newly-amended, they are respectfully traversed for at least the following reasons.

Examiner Thuy V. Tran is thanked for the courtesies extended to Applicants' undersigned representative in a telephone interview held on August 31, 2006 with regard to the outstanding rejections in the instant application.

During the interview, Applicants' undersigned representative argued, as a first issue (1), that, in the arrangement described in independent claim 1 of the instant application, primary electrons are incident on the surface of incidence of the secondary electron emitting layer 1. Applicants' undersigned representative argued that the incident light  $h\nu$  in Fig. 7 of Niigaki '094 does not meet the claimed "primary electrons" feature because there is no disclosure of this incoming incident light  $h\nu$  being composed of electron particles. Instead, the incoming incident light  $h\nu$  in Fig. 7 of Niigaki '094 is composed of photons, which have a zero charge, instead of electrons, which have a negative charge. Applicants' undersigned representative went on to explain, in other words, that electrons are only generated in Niigaki '094 after the incident light impinges on the photocathode in the formation of the photoelectrons  $e^-$  that are emitted from the photocathode 30.

The Examiner responded in this regard that he concedes that Niigaki '094's incident light  $h\nu$ , as shown, for example in Fig. 7, is not a "primary electron," but is instead incoming incident light  $h\nu$  composed of photons. However, the Examiner asserted that once the incoming incident light  $h\nu$  reaches the photocathode 30, primary electrons are formed within the photocathode 30. The Examiner went on to assert that he is interpreting the electrons  $e^-$  that are transmitted from the photocathode 30 in Niigaki '094 as the secondary electrons. Accordingly, the Examiner indicated his belief that Niigaki '094 meets the "primary electrons" and "secondary electrons"

features in independent claim 1 of the instant application as they are currently described in this regard.

Applicants' undersigned representative responded that independent claim 1 of the instant application clearly describes that primary electrons are incident on the secondary electron emitting layer 1, as shown, for example, in Fig. 1 of the instant application. Applicants' undersigned representative explained how this secondary electron emitter arrangement, used in electron tubes, for example, is clearly different from the arrangement in Niigaki '094 where photons are incident on the photocathode 30. Applicants' undersigned representative explained how only one set of electrons are generated at the photocathode 30 of Niigaki '094. Applicants' undersigned representative also explained how that one set of electrons are transmitted as the emitted photoelectrons  $e^-$  which are only generated after the photoelectric conversion process in the photocathode 30 of Niigaki '094. Applicants' undersigned representative went on to explain how, by definition, a photocathode receives incident light and converts it to emitted photoelectrons, and that this arrangement is particularly different from the arrangement described in independent claim 1 of the instant application.

In response to these detailed arguments, the Examiner simply responded that he stands by his asserted interpretation and he argued that additional features would need to be added to independent claim 1 in order to support Applicants' asserted arguments. The Examiner did not recommend any particular new claim language in this regard.

While Applicants maintain the positions set forth above in this regard, in an effort to advance the prosecution of this application, Applicants have opted to further amend independent claim 1 to differently describe features along the lines of those discussed above.

For example, independent claim 1 of the instant application has been newly-amended to describe that primary electrons are incident onto the surface of incidence of the secondary electron emitting layer from a position outside of the secondary electron emitting layer. The Examiner's interpretation, as discussed above and during the interview, is that the primary electrons are generated after they make contact with the top surface of the photocathode 30 in Niigaki '094. The Examiner also conceded during the interview that the incident light  $h\nu$  shown as the downward arrow at the top of Fig. 7 of Niigaki '094 is composed of photons, not electrons. Accordingly, Applicants respectfully submit that the features described by this amendment to independent claim 1 of the instant application are clearly neither shown nor suggested by Niigaki '094.

Even further, Applicants have newly-amended independent claim 1 of the instant application to describe that the "other surface" of the secondary electron emitting layer "is the surface of emission for emitting the secondary electrons corresponding to the incident energy of the primary electrons and generated in the secondary electron emitting layer." This feature is disclosed in the specification of the instant application, for example, at page 11, lines 9-12. Such an arrangement is also neither shown nor suggested by the disclosure of Niigaki '094.

During the August 31, 2006 telephone interview, Applicants' undersigned representative then turned to a second issue (2) and explained that the Office Action's asserted portion of Niigaki '094, at col. 7, lines 17-20, teaches that a positive voltage is applied between the photocathode 30 and the anode 40. However, Applicants' undersigned representative explained that the specific language of independent claim 1 of the instant application describes that a voltage is formed "between the surfaces of the incidence and the emission of the secondary

electron emitting layer to form an electric field in the secondary electron emitting layer.”

Applicants’ undersigned representative then explained Applicants’ position that a voltage described in independent claim 1 “for accelerating the electrons in the direction to the surface of the emission” is not applied in Niigaki ‘094.

The Examiner traversed this assertion by alleging that a voltage is generated between the photocathode’s surface of incidence and the surface of transmission in Niigaki ‘094. The Examiner pointed to various portions of Niigaki ‘094 in this regard, including col. 7, line 59 – col. 8, line 11 and Figs. 1 and 2.

While Applicants do not necessarily agree with such an interpretation, in an effort to advance the prosecution of this application, additional features in this regard have been added to independent claim 1.

In particular, independent claim 1 has been further amended to describe that “the voltage applying means includes a first electrode formed on the side of the surface of the incidence and a second electrode formed on the side of the surface of the emission for applying the predetermined voltage to form an electric field in the secondary electron emitting layer for accelerating the secondary electrons in the direction to the surface of the emission.” Applicants respectfully submit that these newly-added features, which are neither shown nor suggested by the applied art, are disclosed, for example, at page 12, line 25 – page 13, line 2 and page 11, lines 18-21, respectively, of the instant application’s specification.

Applicants respectfully submit that by the utilization of this novel and advantageous configuration, as described in the combination of features of independent claim 1 of the instant application, an electric field is formed in the secondary electron emitting layer, the secondary

electrons generated in the secondary electron emitting layer are accelerated in the direction to the surface of the emission by the electric field, and thereby the efficiency for emitting the secondary electrons outside of the transmission secondary electron emitter is improved.

For at least the foregoing reasons, Applicants respectfully submit that the disclosure of Niigaki '094 is completely different from that of the transmission secondary electron emitter of embodiments of the disclosure of the instant application, as described in newly-amended independent claim 1. Applicants also respectfully submit that similar arguments as set forth above with regard to Niigaki '094 also apply regarding the similar configuration disclosed in Niigaki '387 which is thus also completely different from that of the transmission secondary electron emitter of embodiments of the disclosure of the instant application, as described in newly-amended independent claim 1.

Accordingly, Applicants respectfully assert that the rejections under 35 U.S.C. § 102(b) should be withdrawn because neither of Niigaki '094 or Niigaki '387 teach or suggest each feature of independent claim 1, as amended. As pointed out in MPEP § 2131, "[t]o anticipate a claim, the reference must teach every element of the claim." Thus, "[a] claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. Verdegaal Bros. v. Union Oil Co. Of California, 2 USPQ 2d 1051, 1053 (Fed. Cir. 1987)." Furthermore, Applicants respectfully assert that dependent claims 2-13, are allowable at least because of their dependence from newly-amended independent claim 1, and the reasons set forth above.

**CONCLUSION**

In view of the foregoing remarks, Applicants respectfully request the entry of the Amendment to place the application in clear condition for allowance or, in the alternative, in better form for appeal. Should the Examiner feel that there are any issues outstanding after consideration of this response, the Examiner is invited to contact Applicants' undersigned representative to expedite prosecution. A favorable action is awaited.

**EXCEPT** for issue fees payable under 37 C.F.R. § 1.18, the Commissioner is hereby authorized by this paper to charge any additional fees during the entire pendency of this application including fees due under 37 C.F.R. § 1.16 and 1.17 which may be required, including any required extension of time fees, or credit any overpayment to Deposit Account No. 50-0573.

This paragraph is intended to be a **CONSTRUCTIVE PETITION FOR EXTENSION OF TIME** in accordance with 37 C.F.R. § 1.136(a)(3).

Respectfully submitted,

**DRINKER BIDDLE & REATH LLP**

Dated: September 11, 2006

By:



Paul A. Fournier

Reg. No. 41,023

**Customer No. 055694**

**DRINKER BIDDLE & REATH LLP**

1500 K Street, N.W., Suite 1100

Washington, DC 20005-1209

Tel.: (202) 842-8800

Fax: (202) 842-8465